

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

| | |
|---|--|
| Date of mailing (day/month/year) 18 May 2000 (18.05.00) | |
| International application No. PCT/US98/08716 | Applicant's or agent's file reference 00246/222WO1 |
| International filing date (day/month/year) 30 April 1998 (30.04.98) | Priority date (day/month/year) |
| Applicant McMAHON, Andrew, P. et al | |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
24 November 1999 (24.11.99)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

| | |
|--|---|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland | Authorized officer Claudio Borton |
| Facsimile No.: (41-22) 740.14.35 | Telephone No.: (41-22) 338.83.38 |

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

BEATTIE, Ingrid, A.
Mintz, Levin, Cohn, Ferris,
Glovsky and Popeo PC
One Financial Center
Boston, MA 02111
ETATS-UNIS D'AMERIQUE

| | |
|--|---|
| Date of mailing (day/month/year) 23 August 2000 (23.08.00) | IMPORTANT NOTIFICATION |
| Applicant's or agent's file reference 00246/222WO1 | |
| International application No. PCT/US98/08716 | International filing date (day/month/year) 30 April 1998 (30.04.98) |

| | | |
|--|--------------------------------------|---------------------------|
| 1. The following indications appeared on record concerning: <input type="checkbox"/> the applicant <input type="checkbox"/> the inventor <input checked="" type="checkbox"/> the agent <input type="checkbox"/> the common representative | | |
| Name and Address FREEMAN, John, W. Fish & Richardson P.C. 225 Franklin Street Boston, MA 02110-2804 United States of America | State of Nationality | State of Residence |
| | Telephone No. 617-542-5070 | |
| | Facsimile No. 617-542-8906 | |
| | Teleprinter No. | |
| 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning: <input checked="" type="checkbox"/> the person <input checked="" type="checkbox"/> the name <input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence | | |
| Name and Address BEATTIE, Ingrid, A. Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC One Financial Center Boston, MA 02111 United States of America | State of Nationality | State of Residence |
| | Telephone No. 617-542-6000 | |
| | Facsimile No. 617-542-2241 | |
| | Teleprinter No. | |
| 3. Further observations, if necessary: | | |
| 4. A copy of this notification has been sent to: <input checked="" type="checkbox"/> the receiving Office <input type="checkbox"/> the designated Offices concerned <input type="checkbox"/> the International Searching Authority <input checked="" type="checkbox"/> the elected Offices concerned <input checked="" type="checkbox"/> the International Preliminary Examining Authority <input type="checkbox"/> other: | | |

| | |
|--|--|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35 | Authorized officer I. Britel Telephone No.: (41-22) 338.83.38 |
|--|--|

MEM
IAB
JWF

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

| |
|--|
| To: JOHN W. FREEMAN FISH & RICHARDSON P.C. 225 FRANKLIN STREET BOSTON, MASSACHUSETTS 02110-2684 |
| RECEIVED SEP 03 1998 FISH & RICHARDSON P.C. BOS N. MA |
| lack of unity 9/15/98 RESP TO SEARCH REP. 10/31/98 ABSTRACT 9/30/98 |
| Initials: <u>JK</u> |

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

| | |
|---|--|
| Applicant's or agent's file reference 00246/222WO1 | FOR FURTHER ACTION See paragraphs 1 and 4 below |
| International application No. PCT/US98/08716 | International filing date (day/month/year) 04 MAY 1998 |
| Applicant PRESIDENT AND FELLOWS OF HARVARD COLLEGE | |

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.
Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):
When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the
• international search report; however, for more details, see the notes on the accompanying sheet.
Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35
For more detailed instructions, see the notes on the accompanying sheet.
2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.
4. **Further action(s):** The applicant is reminded of the following:
Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.
Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).
Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

| | |
|---|--|
| Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 | Authorized officer ROBERT C. HAYES, PH.D. |
| Facsimile No. (703) 305-3230 | Telephone No. (703) 308-0196 |

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | |
|---|--|
| Applicant's or agent's file reference 00246/222WO1 | <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">FOR FURTHER ACTION</div> <div>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</div> </div> |
| International application No. PCT/US98/08716 | <div style="display: flex; justify-content: space-between;"> <div>International filing date (<i>day/month/year</i>) 04 MAY 1998</div> <div>(Earliest) Priority Date NONE</div> </div> |
| Applicant PRESIDENT AND FELLOWS OF HARVARD COLLEGE | |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).

2. ☒ Unity of invention is lacking (See Box II).

3. ☐ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.
☐ furnished by the applicant separately from the international application.

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.

4. With regard to the title,

☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.
☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. _____
☐ as suggested by the applicant.
☐ None of the figures.

☐ because the applicant failed to suggest a figure.
☐ because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/08716

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-13

Remark on Protest

☐

The additional search fees were accompanied by the applicant's protest.

☐

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08716

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The old Abstract included a Title, which is now deleted.

NEW ABSTRACT

An enriched population of mammalian dorsal neural progenitor cells, e.g., dopaminergic neural precursor cells, are described that are useful to induce neuronal regeneration in mammals suffering from a neurodegenerative disease.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08716

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : C12N 5/06, 5/08

US CL : 435/325, 368, 377

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/325, 368, 377

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, BIOSIS, MEDLINE

search terms: neural, precursor#, progenitor, stem, cell#, human, porcine, wnt#, dorsal, hippocam##, hindbrain, dopamin?

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---------------|--|-----------------------|
| X --- Y | US 5,411,883 A (BOSS et al) 02 May 1995, columns 3, 7, 11-13, 17 and 19-20. | 1-9 --- 10-13 |
| X --- A | US 5,589,376 A (ANDERSON et al) 31 December 1996, columns 3-4, 8-9, 11, 13-14 and 16-17. | 1 --- 2-13 |
| X | MOYER et al. Culture, Expansion, and Transplantation of Human Fetal Neural Progenitor Cells. Transplantation Proceedings. June 1997, Vol. 29, No. 4, pages 2040-2041, see entire document. | 1-8, 10-13 |
| X | US 5,656,481 A (BAETGE et al) 12 August 1997, column 30, lines 46-57. | 1, 11-13 |



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

Z document member of the same patent family

Date of the actual completion of the international search

30 JULY 1998

Date of mailing of the international search report

81 AUG 1998

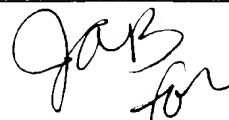
Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

ROBERT C. HAYES, PH.D.

Telephone No. (703) 308-0196



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08716

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-13, drawn to a population of mammalian neural precursor cells committed to a cell fate.

Group II, claim(s) 14-16, drawn to a method of stimulating proliferation of a heterogenous population of neural cell precursor cells to enrich for dorsal neural cells.

Group III, claim(s) 17-18 and 20, drawn to a method of inducing neuronal regeneration in an adult mammal comprising transplanting dorsal neural precursor cells.

Group IV, claim(s) 19, drawn to a method of inducing neuronal regeneration in an adult mammal comprising administering a Wnt polypeptide or Wnt agonist.

The inventions listed as Groups I-IV do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I is directed to a population of mammalian neural precursor cells, which is the first product. However, because Boss et al teach an enriched population of porcine or human neuron progenitor cells (i.e., mammalian neural precursor cells), no special technical feature exists for Group I as defined by PCT RULE 13.2, because it does not define a contribution over the prior art. The technical features of Groups II-IV are drawn to methods having different goals, method steps and starting materials, which do not share the same or a corresponding technical feature. Note that PCT Rule 13 does not provide for multiple products or methods within a single application. Because the technical feature of Group I is not a special technical feature, and because the technical features of the Group II-IV inventions are not present in the Group I claims, unity of invention is lacking.

CHAPTER I
PCT TELEPHONE MEMORANDUM
FOR
LACK OF UNITY OF INVENTION

09/674292
526 Rec'd PCT/PTO 30 OCT 2000



PCT No.: PCT/US98/08716

Examiner: ROBERT C. HAYES, PH.D.

Attorney spoken to: JOHN FREEMAN

Date of call: 23 JULY 1998

- ☐ Amount of payment approved:
- ☐ Deposit account number to be charged:
- ☐ Attorney elected to pay for ALL additional inventions
- ☐ Attorney elected to pay only for the additional inventions covered by
 - ☐ Group(s):
 - encompassing --
 - ☐ Claim(s):
- ☒ Attorney elected **NOT** to pay for any additional inventions, therefore, only the first claimed invention (Group I) covered by Claim(s) 1-13 has been searched.
- ☒ Attorney was orally advised that there is no right to protest for any group not paid for.
- ☒ Attorney was orally advised that any protest must be filed no later than 15 days from the mailing of the Search Report (PCT/ISA/210).

Time Limit For Filing A Protest

Applicant is hereby given 15 days from the mailing date of this Search Report in which to file a protest of the holding of lack of unity of invention. In accordance with PCT Rule 40.2, applicant may protest the holding of lack of unity only with respect to the group(s) paid for.

Detailed Reasons For Holding Lack Of Unity Of Invention:

Detailed Reasons For Holding Lack of Unity Of Invention:
(Continued on a separate sheet)

Note: A copy of this form must be attached to the Search Report.

**ATTACHMENT TO CHAPTER I PCT TELEPHONE MEMORANDUM
FOR
LACK OF UNITY OF INVENTION**

Detailed Reasons For Holding Lack Of Unity Of Invention:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-13, drawn to a population of mammalian neural precursor cells committed to a cell fate.

Group II, claim(s) 14-16, drawn to a method of stimulating proliferation of a heterogenous population of neural cell precursor cells to enrich for dorsal neural cells.

Group III, claim(s) 17-18 and 20, drawn to a method of inducing neuronal regeneration in an adult mammal comprising transplanting dorsal neural precursor cells.

Group IV, claim(s) 19, drawn to a method of inducing neuronal regeneration in an adult mammal comprising administering a Wnt polypeptide or Wnt agonist.

The inventions listed as Groups I-IV do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I is directed to a population of mammalian neural precursor cells, which is the first product. However, because Boss et al teach an enriched population of porcine or human neuron progenitor cells (i.e., mammalian neural precursor cells), no special technical feature exists for Group I as defined by PCT RULE 13.2, because it does not define a contribution over the prior art. The technical features of Groups II-IV are drawn to methods having different goals, method steps and starting materials, which do not share the same or a corresponding technical feature. Note that PCT Rule 13 does not provide for multiple products or methods within a single application. Because the technical feature of Group I is not a special technical feature, and because the technical features of the Group II-IV inventions are not present in the Group I claims, unity of invention is lacking.

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

| | | |
|---|-----------|--|
| (51) International Patent Classification ⁶ : C12N 5/06, 5/08 | A1 | (11) International Publication Number: WO 99/57248 (43) International Publication Date: 11 November 1999 (11.11.99) |
| (21) International Application Number: PCT/US98/08716 (22) International Filing Date: 30 April 1998 (30.04.98) (71) Applicant (for all designated States except US): PRESIDENT AND FELLOWS OF HARVARD COLLEGE [US/US]; 17 Quincy Street, Cambridge, MA 02138 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): McMAHON, Andrew, P. [GB/US]; 128 Kendall Road, Lexington, MA 02173 (US). LEE, Scott, K. [US/US]; 54 Chestnut Street, Cambridge, MA 02139 (US). TAKADA, Shinji [-/-]; - (74) Agent: FREEMAN, John, W.; Fish & Richardson P.C., 225 Franklin Street, Boston, MA 02110-2804 (US). | | (81) Designated States: CA, JP, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> |
| (54) Title: INDUCTION OF NEURONAL REGENERATION (57) Abstract An enriched population of mammalian dorsal neural progenitor cells, e.g., dopaminergic neural precursor cells, are described that are useful to induce neuronal regeneration in mammals suffering from a neurodegenerative disease. | | |

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

| | | | | | | | |
|----|--------------------------|----|--|----|--|----|--------------------------|
| AL | Albania | ES | Spain | LS | Lesotho | SI | Slovenia |
| AM | Armenia | FI | Finland | LT | Lithuania | SK | Slovakia |
| AT | Austria | FR | France | LU | Luxembourg | SN | Senegal |
| AU | Australia | GA | Gabon | LV | Latvia | SZ | Swaziland |
| AZ | Azerbaijan | GB | United Kingdom | MC | Monaco | TD | Chad |
| BA | Bosnia and Herzegovina | GE | Georgia | MD | Republic of Moldova | TG | Togo |
| BB | Barbados | GH | Ghana | MG | Madagascar | TJ | Tajikistan |
| BE | Belgium | GN | Guinea | MK | The former Yugoslav Republic of Macedonia | TM | Turkmenistan |
| BF | Burkina Faso | GR | Greece | ML | Mali | TR | Turkey |
| BG | Bulgaria | HU | Hungary | MN | Mongolia | TT | Trinidad and Tobago |
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| BR | Brazil | IL | Israel | MW | Malawi | UG | Uganda |
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| CG | Congo | KE | Kenya | NO | Norway | YU | Yugoslavia |
| CH | Switzerland | KG | Kyrgyzstan | NZ | New Zealand | ZW | Zimbabwe |
| CI | Côte d'Ivoire | KP | Democratic People's Republic of Korea | PL | Poland | | |
| CM | Cameroon | KR | Republic of Korea | PT | Portugal | | |
| CN | China | KZ | Kazakhstan | RO | Romania | | |
| CU | Cuba | LC | Saint Lucia | RU | Russian Federation | | |
| CZ | Czech Republic | LI | Liechtenstein | SD | Sudan | | |
| DE | Germany | LK | Sri Lanka | SE | Sweden | | |
| DK | Denmark | LR | Liberia | SG | Singapore | | |
| EE | Estonia | | | | | | |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08716

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) C12N 5/06, 5/08

US CL 435/325, 368, 377

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/325, 368, 377

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, BIOSIS, MEDLINE

search terms: neural, precursor#, progenitor, stem, cell#, human, porcine, wnt#, dorsal, hippocam##, hindbrain, dopamin?

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---------------|--|-----------------------|
| X --- Y | US 5,411,883 A (BOSS et al) 02 May 1995, columns 3, 7, 11-13, 17 and 19-20. | 1-9 --- 10-13 |
| X --- A | US 5,589,376 A (ANDERSON et al) 31 December 1996, columns 3-4, 8-9, 11, 13-14 and 16-17. | 1 --- 2-13 |
| X | MOYER et al. Culture, Expansion, and Transplantation of Human Fetal Neural Progenitor Cells. Transplantation Proceedings. June 1997, Vol. 29, No. 4, pages 2040-2041, see entire document. | 1-8, 10-13 |
| X | US 5,656,481 A (BAETGE et al) 12 August 1997, column 30, lines 46-57. | 1, 11-13 |

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X

document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y

document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

&

document member of the same patent family

Date of the actual completion of the international search

30 JULY 1998

Date of mailing of the international search report

31 AUG 1998Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

ROBERT C. HAYES, PH.D.

Telephone No. (703) 308-0196

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08716

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-13

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08716

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-13, drawn to a population of mammalian neural precursor cells committed to a cell fate.

Group II, claim(s) 14-16, drawn to a method of stimulating proliferation of a heterogenous population of neural cell precursor cells to enrich for dorsal neural cells.

Group III, claim(s) 17-18 and 20, drawn to a method of inducing neuronal regeneration in an adult mammal comprising transplanting dorsal neural precursor cells.

Group IV, claim(s) 19, drawn to a method of inducing neuronal regeneration in an adult mammal comprising administering a Wnt polypeptide or Wnt agonist.

The inventions listed as Groups I-IV do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I is directed to a population of mammalian neural precursor cells, which is the first product. However, because Boss et al teach an enriched population of porcine or human neuron progenitor cells (i.e., mammalian neural precursor cells), no special technical feature exists for Group I as defined by PCT RULE 13.2, because it does not define a contribution over the prior art. The technical features of Groups II-IV are drawn to methods having different goals, method steps and starting materials, which do not share the same or a corresponding technical feature. Note that PCT Rule 13 does not provide for multiple products or methods within a single application. Because the technical feature of Group I is not a special technical feature, and because the technical features of the Group II-IV inventions are not present in the Group I claims, unity of invention is lacking.